

CLAIMS

1. A compound comprising alpha-(trichloromethyl-4-Pyridineethanol) (PETCM) and derivatives thereof.
- 5 2. The compound of claim 1, wherein said compound is alpha-(trichloromethyl-4-Pyridineethanol) (PETCM).
3. The compound of claim 1, wherein said compound is isolated by high throughput screening.
- 10 4. A method of identifying at least one protein which inhibits or activates an apoptotic pathway comprising the steps of:
 - a) preparing fractions of a cellular extract;
 - 15 b) exposing said fractions to PETCM and determining whether apoptosis activation or inhibition occurs in each of said fractions;
 - c) purifying said fractions which exhibit apoptosis activation or inhibition upon exposure to PETCM; and
 - 20 d) identifying from said purified fractions at least one protein, wherein said at least one protein inhibits or activates apoptosis in said apoptotic pathway.
- 25 5. The method of claim 4 wherein said at least one protein which activates apoptosis is selected from the group consisting of PHAPI, PHAP12a and PHAPIII.
6. The method of claim 4 wherein said at one
- 30 protein which inhibits apoptosis is promothymosin-alpha.

7. A method of activating a caspase pathway in a cell comprising the step of exposing PETCM to said cell in an amount sufficient to effect said activation.

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8. The method of claim 7, wherein said cell is mammalian.

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9. The method of claim 8, wherein said mammalian cell is malignant.

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10. The method of claim 9, wherein said malignant cell is selected from the group consisting of a colon cancer cell, a prostate cancer cell, a leukemia cell, a melanoma cell, a lymphoma cell, a cervical carcinoma cell and a glioblastoma cell.

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11. The method of claim 7, wherein said caspase pathway is the caspase-3 pathway.

12. The method of claim 11, wherein said PETCM is exposed to said cell in a range of approximately 0.1 uM to 1.0 mM.

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13. The method of claim 12, wherein said PETCM is exposed to said cell at a concentration of 0.2 mM.

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14. A method of inducing apoptosome formation in a cell, wherein said formation is inhibited by ProT, comprising the step of exposing PETCM to said cell in an amount sufficient to effect said induction.

15. A method of inducing function of PHAP protein, in a cell, inhibited by prothymosin-alpha (ProT) comprising the step of exposing PETCM to said cell in an amount sufficient to induce said function.

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16. A method of reversing inhibition of caspase-3 activation, in a cell, wherein said inhibition is induced by ProT, comprising the step of exposing PETCM to said cell in an amount sufficient to effect said reversal.

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17. A method of negatively regulating caspase-9 activation in a cell comprising the step of exposing ProT to said cell in an amount sufficient to negatively regulate said activation.

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18. A method of promoting caspase activation in a cell, subsequent to apoptosome formation, comprising administering PHAP protein to said cell in an amount sufficient to effect said activation.

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19. A method of identifying regulators of apoptosome formation comprising the steps of:
a) preparing extracts of mammalian, malignant cells;
b) exposing said extracts to a probe, wherein said probe comprises a nucleotide sequence encoding prothymosin-alpha, for a time and under conditions sufficient for complexes to form between said probe and nucleic acid sequences in said extracts; and
c) detecting complex formation between said probe and said nucleic acid sequences in said extracts,

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wherein said nucleic acid sequences encode
regulators of apoptosome formation.